

WHAT IS CLAIMED IS:

1. A method of forming a metal line in a semiconductor device, comprising the steps of:

5 sequentially forming a first etch stop film, a second interlayer insulating film, a second etch stop film and a third interlayer insulating film on a first interlayer insulating film into which a metal line is buried;

forming a first photoresist pattern defining a via hole in a given region of the third interlayer insulating film;

10 performing an etch process using the first photoresist pattern as an etch mask up to the first etch stop film to form the via hole, and then removing the first photoresist pattern;

forming a BARC film on the resulting surface and then forming a second photoresist pattern defining the metal line in another given region of the BARC film;

15 performing an etch process using the second photoresist pattern as an etch mask up to the second etch stop film to form a metal line trench, and then removing the second photoresist pattern and the BARC film by means of a first wet etch process;

20 etching the first etch stop film by means of a second wet etch process using the second interlayer insulating film as an etch mask; and

cleaning the resulting entire surface by means of a third wet etch process.

2. The method as claimed in claim 1, wherein the first wet etch process is performed using an aqueous solution in which sulfuric acid ( $\text{H}_2\text{SO}_4$ ) and hydrogen peroxide ( $\text{H}_2\text{O}_2$ ) are mixed in the ratio of one of 2: 1, 4: 1 and 6: 1 at a bath temperature of about  $100^\circ\text{C}$  to  $140^\circ\text{C}$  for about 2 to 10minutes.

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3. The method as claimed in claim 1, wherein the second wet etch process is performed using an aqueous solution in which  $\text{HNO}_3$  of 60 to 90% is mixed at a bath temperature of about  $140^\circ\text{C}$  to  $180^\circ\text{C}$  for about 10 to 60minutes.

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4. The method as claimed in claim 1, wherein the third wet etch process is performed using an aqueous solution in which HF and DI water are mixed in the ratio of one of 200: 1, 19: 1, 500: 1 and 600: 1 at a bath temperature of a room temperature for about 10 to 60minutes.

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5. A method of forming a metal line in a semiconductor device, comprising the steps of:

sequentially forming a first etch stop film, a second interlayer insulating film and a BARC film on a first interlayer insulating film into which a metal line is buried;

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forming a photoresist pattern defining a trench in a given region of the BARC film;

performing an etch process up to the second interlayer insulating film using the photoresist pattern as an etch mask to form a trench;

removing the photoresist pattern and the BARC film by means of a first wet etch process;

etching the first etch stop film by means of a second wet etch process using the second interlayer insulating film as an etch mask; and

- 5        cleaning the resulting entire surface by means of a third wet etch process.